IN THE CLAIMS:

1. (currently amended) A washing machine comprising:

a tub;

a resistance network comprising a sensor, a resistor, and a voltage source, said sensor positioned and configured to sense a conductivity of a fluid in said tub; and

a controller operatively coupled to said sensor and configured to control an amount of the fluid in said tub during a rinse cycle based on the conductivity of the fluid measured at an end of a wash cycle, said controller ~~configured~~ comprising a microcomputer programmed to:

determine a desirable achievable rinse level;

at predetermined water levels during the rinse operation, measure an average liquid conductivity;

calculate an overall change in conductivity based on the measured average liquid conductivity at each predetermined water level;

compare the calculated overall change in conductivity to the desirable achievable rinse level; and

cease the rinse operation when the overall change in conductivity exceeds an acceptable change percentage of the desirable achievable rinse level.

2. (previously presented) A washing machine according to Claim 1, wherein said sensor is positioned within said tub.

3. (previously presented) A washing machine according to Claim 1, wherein said sensor is positioned outside said tub.

4. (previously presented) A washing machine according to Claim 1, wherein said sensor is configured to sense an initial conductivity of the fluid during the wash cycle without detergent.

5. (previously presented) A washing machine according to Claim 4, wherein said sensor is further configured to sense a final conductivity of the fluid after the wash cycle with detergent.

6. (currently amended) A washing machine according to Claim 5, wherein said ~~controller is configured~~ microcomputer is programmed to determine a desirable achievable rinse level by calculating the difference between the initial conductivity and the final conductivity.

7. (currently amended) A washing machine according to Claim 1, wherein said ~~controller is configured~~ microcomputer is programmed to measure the conductivity of the fluid sensed by said sensor during the wash cycle without detergent and during the wash cycle with detergent.

8. (currently amended) A washing machine according to Claim 7, wherein said ~~controller is configured~~ microcomputer is programmed to measure the conductivity of the fluid sensed by said sensor over at least a 3 second period.

9. (currently amended) A washing machine according to Claim 7, wherein said ~~controller is configured~~ microcomputer is programmed to calculate an overall change of conductivity of the fluid.

10. (currently amended) A washing machine according to Claim 9, wherein said ~~controller is configured~~ microcomputer is programmed to compare the overall change of conductivity with a desirable achievable rinse level.

11.-23. (canceled)